

Appl. No. 10/654,556
Amdt. dated March 21, 2006
Reply to Office Action of February 17, 2006

REMARKS/ARGUMENTS

Claims 16-45 and 54-62 are pending in this application.

Claims 1-15 and 46-53 have been cancelled as being drawn to a non-elected invention.

Independent claims 16, 30 and 38 have been amended to more particularly claim Applicants' invention.

New claims 54- 62 have been added. Independent claim 54 corresponds to originally-filed claim 16 in combination with originally-filed claim 2, minus the amine and polyamide species. Dependent claims 55-58 correspond to originally-filed claims 3 - 6. Claims 59-61 specify the number of pendant epoxy moieties on the polymer and the ratio of the epoxy-functional polymer and the epoxy-reactive polymer. Dependent claim 62 recites a preferred epoxy-functional polymer. Support can be found in the specification at page 4, lines 28-34 and at page 5, line 27.

Turning to the grounds for rejection, claims 19, 21-23, 33, 35, 41 and 43-45 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite in the recitation that the cured binder composition on one side of the sheet can be different than the cured binder composition on the other side of the sheet. The meaning of the word "different" is questioned. The word "different" is simply intended to mean that the cured binder composition on both sides of the sheet is not the same. The difference could be one or more of several features, such as different chemical compositions, different add-on amounts or different patterns. It is believed that the meaning of the word is clear and those skilled in the art would understand Applicants' intent.

Claims 22 and 23 are rejected for lack of proper antecedent basis in the use of the phrase "the binder network". These claims have been amended to overcome this basis for rejection.

Claims 44 and 45 are rejected as being duplicates of claims 36 and 37. To correct this mistake, claim 44 has been amended to depend from claim 38.

Claims 16-22 and 24-38 stand rejected under 35 U.S.C. 102(a) as being anticipated by U.S. 6,500,289 to Merker et al. Merker et al. teaches binder compositions containing a standard bonding material, such as ethylene vinyl acetate copolymer (see column 10, lines 12-26) and a relatively small amount (15 percent or less) of an epoxy-functional component (see column 12, lines 13-32). As a curing agent or initiator, Merker et al incorporates an unspecified amount of an amine (see column 11, lines 37-54), which in Applicants' terminology would be considered to be an epoxy-reactive material. Those skilled in the art would presume the unspecified amount of the amines to be small since they are characterized as being curing agents or initiators.

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In contrast, Applicants' aqueous binder compositions can consist essentially of the epoxy-functional and epoxy-reactive polymers on a solids basis (see Applicants' Examples). As such, they do not contain significant amounts, if any, of the standard bonding materials, such as ethylene vinyl acetate, taught to be a major component of the Merker et al. binder compositions.

Furthermore, the relative amounts of the epoxy-functional polymer to the epoxy-reactive polymer in Applicants' binder compositions can be from about 0.5 to about 200 dry weight percent (see page 5, line 27 of Applicants' specification). Such relative amounts are not taught or suggested by Merker et al.

Furthermore, Applicants' epoxy-functional polymers can contain large numbers of pendant epoxy moieties per molecule, such as 10 or more (see page 4, lines 26-34). In contrast, the specific epoxy-functional materials identified in Merker et al. have no more than 6 epoxy groups per molecule. (Merker identifies three specific epoxy resins (col. 11, line 61 through col. 12, line 6). The first resin is a bisphenol A resin, generically drawn by Merker in col. 11, line 18. The specific trade name EPI-REZ 351 5-W-60 is given for this type of resin, which has two epoxy moieties per molecule. The second resin identified by Merker (EPI-REZ 3519-W-50) is a modified bisphenol A type resin, with two epoxy moieties per molecule. The third resin (EPI-REZ 6006-W-70) is an epoxidized O-cresylic novalac resin that contains on average 6 epoxy moieties per molecule. Information on these resins can be found at the website www.resins.com/resins/am/products/EPI-REZ/epi-rez_resins.html.)

In addition, in a preferred embodiment, the epoxy-reactive polymer of Applicants' invention contains carboxyl groups, whereas Merker et al. only discloses amine groups.

Accordingly, Applicants' independent claims 16, 30 and 38 have been amended to recite the foregoing features to clearly distinguish over the teachings of Merker et al. Therefore the anticipation rejection is overcome.

Claims 38-45 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Merker et al. in view of U.S. 4,610,743 to Salmeen et al. However, in light of the foregoing amendments and remarks, the combined teachings of Merker et al. and Salmeen fail to suggest the subject matter of these claims for the same reasons discussed above regarding the shortcomings of Merker et al.

Claim 23 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Merker et al. in view of U.S. 6,129,815 to Larson et al. However, claim 23 is patentable over the combined teachings of Merker et al. and Larson et al. for the same reasons set forth above relative to the primary reference, Merker et al.

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Claims 44 and 45 stand objected to on the grounds of double patenting as being substantial duplicates of claims 36 and 37. This basis for objection has been obviated by correcting the dependency of claim 44 to be dependent from claim 38 rather than claim 30.

Claims 16-37, 38-45, and 16-32 and 30-45 stand provisionally rejected on the ground of double patenting relative to two co-pending commonly-assigned applications. However, since these co-pending applications were filed after the filing date of this application and have not been patented and the rejections are provisional, there appears to be no need to address these rejections at this time.

It is believed that this application is now in condition for allowance and such action is earnestly solicited.

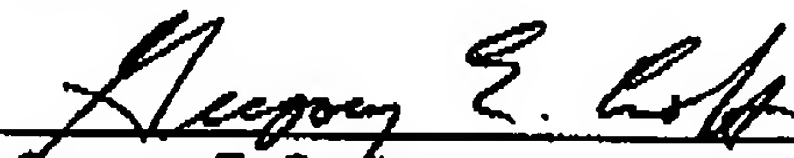
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The undersigned may be reached at: (920) 721-3616.

Respectfully submitted,

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